References

About the C2C-CC

Enhancing road safety and traffic efficiency by means of Cooperative Intelligent Transport Systems and Services (C-ITS) is the dedicated goal of the CAR 2 CAR Communication Consortium. The industrial driven, non-commercial association was founded in 2002 by vehicle manufacturers affiliated with the idea of cooperative road traffic based on Vehicle-to-Vehicle Communications (V2V) and supported by Vehicle-to-Infrastructure Communications (V2I). The Consortium members represent worldwide major vehicle manufactures, equipment suppliers and research organisations.

Over the years, the CAR 2 CAR Communication Consortium has evolved to be one of the key players in preparing the initial deployment of C-ITS in Europe and the subsequent innovation phases. CAR 2 CAR members focus on wireless V2V communication applications based on ITS-G5 and concentrate all efforts on creating standards to ensure the interoperability of cooperative systems, spanning all vehicle classes across borders and brands. As a key contributor, the CAR 2 CAR Communication Consortium and its members work in close cooperation with the European and international standardisation organisations.

Disclaimer

Document information

Number:	2052	Version:	n.a.	Date:	2023-12-15
Title:	References			Document Type:	RS
Release	1.6.5				
Release Status:	Public				
Status:	Final				

Table 1: Document information

Changes since last release

Release	Date	Changes	Edited by	Approved
1.6.5	2023-12-15	Updated ASN.1 references of: • [TS 102 894-2] Updated normative reference: • [C-ITS Message Profile] Added as informative references: • [ITSTF 20001] • [ISO 21219-15] • [ISO 14819-2] • [EN 16157-3] • [TS 102 894-2 V2.2.1]	Release Management	Steering Committee
1.6.4	2023-07-21	Added as informative reference: • [ADASIS AISBL] V3.1.0	Release Management	Steering Committee
1.6.3	2022-12-16	Added as informative reference: • [TS 103 831] V2.1.1	Release Management	Steering Committee
1.6.2	2022-07-22	Added as normative references: • [C-ITS Message Profile] • [ISO/TS 19321] • [ISO/TS 14823] • [IEEE 1609.2.1] Updated entry of: • [IEEE 1609.2]	Release Management	Steering Committee
1.6.1	2021-12-17	Updated version of: • [EN 302 636-5-1] to V2.2.1 • [EN 302 663] to V1.3.1 • [TS 102 965] to V1.5.1 • [TS 103 248] to V1.3.1 • [TS 103 301] to V2.1.1 • [IEEE 802.11] to 2016 Added • [CPOC]	Release Management	Steering Committee
1.6.0	2021-07-23	Updated version of: • [EN 302 636-4-1] to V1.4.1 • [TS 102 636-4-2] to V1.4.1 • [TS 103 097] to V1.4.1	Release Management	Steering Committee
1.5.3	2021-03-12	No changes	Release Management	Steering Committee
1.5.2	2020-12-16	Added [EN 302 890-2] as normative reference	Release Management	Steering Committee
1.5.1	2020-07-31	Minor corrections	Release Management	Steering Committee
1.5.0	202003-27	• Minor corrections • further informative references added	Release Management	Steering Committee

| 1.4.0 | 2019-09-13 | Minor corrections | Release Management | Steering Committee |
| 1.3.0 | 2018-08-31 | Initial setup of document | Release Management | Steering Committee |

Table 2: Changes since last release

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None

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1   Introduction

Other (informational)   **RS_Refs_00147**

As references to other standards and their versions are essential information in the V2X area, CAR 2 CAR Communication Consortium is providing them in:

- this separate document to make the information:
    - explicitly available (not 'hidden' in the different requirement documents)
    - easily accessible (e.g. for alignment with other organizations)

2   Scope

Other (informational)   **RS_Refs_00148**

This document holds all normative and informative references of the CAR 2 CAR requirement specifications of this release bundle.

3   References

3.1   Normative references

Definition   **RS_Refs_00427**

All documents, which are part of this release, are normative / informative depending on the document type, e.g:

- Requirement specifications are normative
- Explanatories are informative.

Please refer to C2CCC_TR_2000_ReleaseOverview.pdf for further details on this.

All normative documents, which are not part of this release, are listed below.

Symbol	Version	Title
[C-ITS Message Profile]	Release 1.8	C-Roads: 'Harmonised C-ITS Specifications for Europe', https://www.c-roads.eu/fileadmin/user_upload/media/Dokumente/Harmonised_specs_text.pdf.
[EN 302 571]	2.1.1 (2017-02)	Intelligent Transport Systems (ITS); Radio communications equipment operating in the 5 855 MHz to 5 925 MHz frequency band; Harmonized EN covering the essential requirements of article 3.2 of the R&TTE Directive.
[EN 302 636-4-1]	1.4.1 (2020-01)	Intelligent Transport Systems (ITS); Vehicular Communication; Geonetworking; Part 4 Geographical addressing and forwarding for point-to-point and point-to-multipoint communications; Sub-part 1: Media-Independent Functionality.
[EN 302 636-5-1]	2.2.1 (2019-05)	Intelligent Transport Systems (ITS); Vehicular Communication; Geonetworking; Part 5: Transport Protocols; Sub-part 1: Basic Transport Protocols.
[EN 302 637-2]	1.4.1 (2019-01)	Intelligent Transport Systems (ITS); Vehicular Communications; Basic Set of Applications; Part 2: Specification of Cooperative Awareness Basic Service.
[EN 302 637-3]	1.3.1 (2019-04)	Intelligent Transport Systems (ITS); Vehicular Communications; Basic Set of Applications; Part 3: Specifications of Decentralized Environmental Notification Basic Service.
[EN 302 663]	1.3.1 (2020-01)	Intelligent Transport Systems (ITS); Access layer specification for Intelligent Transport Systems operating in the 5 GHz frequency band.
[EN 302 665]	1.1.1 (2010-09)	Intelligent Transport Systems (ITS); Communications Architecture
[EN 302 890-2]	2.1.1 (2020-10)	Intelligent Transport Systems (ITS); Facilities Layer function; Part 2: Position and Time management (PoTi); Release 2
[EN 302 931]	1.1.1 (2011-07)	Vehicular Communications; Geographical Area Definition.
[ISO/TS 19321]	(2020-09)	Intelligent Transport Systems - Cooperative ITS - Dictionary of In-Vehicle Information (IVI) Data Structures
[ISO/TS 14823]	(2017-05)	Intelligent Transport Systems - Graphic Data Dictionary
[ISO 8855]	(2011-12)	Road vehicles - Vehicle dynamics and road-holding ability - Vocabulary, ISO, 2011

[TS 102 636-4-2]	1.4.1 (2021-02)	Intelligent Transport Systems (ITS); Vehicular Communications; GeoNetworking; Part 4: Geographical addressing and forwarding for point-to-point and point-to-multipoint communications; Sub-part 2: Media-dependent functionalities for ITS-G5
[TS 102 687]	1.2.1 (2018-04)	Decentralized Congestion Control Mechanisms for Intelligent Transport Systems operating in the 5 GHz range; Access layer part.
[TS 102 792]	1.2.1 (2015-06)	Intelligent Transport Systems (ITS); Mitigation techniques to avoid interference between European CEN Dedicated Short Range Communication (CEN DSRC) equipment and Intelligent Transport Systems (ITS) operating in the 5 GHz frequency rang.
[TS 102 894-2]	1.3.1 (2018-08)	Intelligent Transport Systems (ITS); Users and applications requirements; Applications and facilities layer common data dictionary.
[TS 102 965]	1.5.1 (2020-01)	Intelligent Transport Systems (ITS); Application Object Identifier (ITS – AID); Registration list.
[TS 103 097]	1.4.1 (2020-10)	Intelligent Transport Systems (ITS); Security; Security Header and Certificate Formats.
[TS 103 248]	1.3.1 (2019-04)	Intelligent Transport Systems (ITS); GeoNetworking; Port Numbers for the Basic Transport Protocol (BTP)
[TS 103 301]	2.1.1 (2021-03)	Intelligent Transport Systems (ITS); Vehicular Communications; Basic Set of Applications; Facilities layer protocols and communication requirements for infrastructure services

Table 3: Normative references

The Change Requests listed in this directory: https://docbox.etsi.org/ITS/Open/CRs are integral part of the corresponding ETSI standards.

3.2 Informative references

Other (informational)   **RS_Refs_00151**

Symbol	Version	Title
[ADASIS AISBL]	V3.1.0	ADASIS AISBL; ADASIS v3 Reference; Specification v3.1.0; https://adasis.org/adasis-aisbl/
[C-ITS CP]	1.1	'Certificate Policy for Deployment and Operation of European Cooperative Intelligent Transport Systems (C-ITS)' [Online]. Available: https://ec.europa.eu/transport/sites/transport/files/c-its_certificate_policy-v1.1.pdf
[C-ITS SP]	1	'Security Policy & Governance Framework for Deployment and Operation of European Cooperative Intelligent Transport Systems (C-ITS)' [Online].

Symbol	Version	Title
		Available: https://ec.europa.eu/transport/sites/transport/files/c-its_security_policy_release_1.pdf
[CPOC]	1.2 (2021-12)	C-ITS Point of Contact (CPOC) Protocol; Annex VIII: EU CCMS Levels & Requirements; chapter 19
[ECE 13]	(2016-02-18)	Regulation No 13 of the Economic Commission for Europe of the United Nations (UN/ECE) — Uniform provisions concerning the approval of vehicles of categories M, N and O with regard to braking [2016/194]; Available: http://data.europa.eu/eli/reg/2016/194/oj
[ECE 13H]	(2015-12-22)	Regulation No 13-H of the Economic Commission for Europe of the United Nations (UN/ECE) — Uniform provisions concerning the approval of passenger cars with regard to braking [2015/2364]; Available: http://data.europa.eu/eli/reg/2015/2364/oj
[ECE 48]	(2019-01-16)	Regulation No 48 of the Economic Commission for Europe of the United Nations (UNECE) — Uniform provisions concerning the approval of vehicles with regard to the installation of lighting and light-signalling devices [2019/57]; Available: http://data.europa.eu/eli/reg/2019/57/oj
[ECE 53]	(2020-01-15)	UN Regulation No 53 — Uniform provisions concerning the approval of category L3 vehicles with regard to the installation of lighting and light-signalling devices [2020/31]; Available: http://data.europa.eu/eli/reg/2020/31/oj
[ECE 78]	(2017-09-14)	European Norm ECE Regulations No. 78 of the Economic Commission for Europe of the United Nations (UN/ECE) — Uniform provisions concerning the approval of vehicles of categories L1, L2, L3, L4 and L5 with regard to braking; Available: https://www.unece.org/fileadmin/DAM/trans/main/wp29/wp29regs/2018/R078r2e.pdf
[ECID 2020/1426]	(2020-10-07)	Commission Implementation decision (EU); on the harmonised use of radio spectrum in the 5 875-5 935 MHz frequency band for safety-related applications of intelligent transport systems (ITS) and repealing Decision 2008/671/EC; notified under document C(2020) 6773
[EN 16157-3]	(2018)	Intelligent transport systems - DATEX II data exchange specifications for traffic management and information - Part 3: Situation Publication.
[IEEE 1609.2]	(2016 amended by	IEEE Std 1609.2™ Standard for Wireless Access in Vehicular Environments -- Security Services for Applications and Management Messages

Symbol	Version	Title
	2017 and 2019)	
IEEE 1609.2.1	(2020-12)	IEEE Std. 1609.2.1-2020; Standard for Wireless Access in Vehicular Environments (WAVE) – Certificate Management Interfaces for End Entities
[IEEE 802.11]	(2016)	Part 11: Wireless LAN Medium Access Control (MAC) and Physical Layer (PHY) Specifications
[IEEE 802.1D]	(1998)	IEEE Standard for Information technology – Telecommunications and information exchange between systems; Local and metropolitan area networks; Common specifications; Part 3: Media Access Control (MAC) Bridges
[ISO/TS 19091]	(2019)	Intelligent transport systems - Cooperative ITS - Using V2I and I2V communications for applications related to signalized intersections
[ISO 14819-2]	(2021)	Intelligent transport systems — Traffic and travel information messages via traffic message coding; Part 2: Event and information codes for Radio Data System-Traffic Message Channel (RDS-TMC) using ALERT-C
[ISO 21219-15]	(2023-05)	Intelligent transport systems – Traffic and travel information (TTI) via transport protocol experts group; generation 2 (TPEG2); Part 15: Traffic event compact (TPEG2-TEC)
[ITSTF 20001]	1.5 (2021-01-21)	Safety related message sets – Selection of DATEX II Situations; DENM and TPEG2-TEC Causes and TMC Events for EC high level Categories; Available: https://tisa.org/wp-content/uploads/ITSTF20001_SafetyrelatedMessage-Sets-DATEXII_DENM_TPEG-TEC_TMC_-v1.5_FINAL-1.pdf
[SAE J2945/1]	(2016-03)	SAE J2945/1: On-board System Requirements for V2V Safety Communications
[SAE J2735]	(2016-03)	Dedicated Short Range Communications (DSRC) Message Set Dictionary
[TS 102 731]	1.1.1 (2010-09)	Intelligent Transport Systems (ITS); Security; Security Services and Architecture
[TS 102 894-2 V2.2.1]	V2.2.1	Intelligent Transport Systems (ITS); Users and applications requirements; Part 2: Applications and facilities layer common data dictionary; Release 2
[TS 102 940]	1.3.1 (2018-04)	Intelligent Transport Systems (ITS); Security; ITS communications security Architecture and security management
[TS 102 941]	1.4.1 (2021-01)	Intelligent Transport Systems (ITS); Security; Trust and Privacy Management

Symbol	Version	Title
[TS 103 831]	V2.1.1 (2022-11)	Intelligent Transport Systems (ITS); Vehicular Communications; Basic Set of Applications; Decentralized Environmental Notification Service; Release 2

Table 4: Informative references

3.3 Machine-readable definitions

Other (informational)   **RS_Refs_00152**

Published ASN.1 definitions of referenced ETSI standards are listed in the table below. Please note, the provided links lead to the versions and all corrections, which were available at the time, this C2C-CC specification bundle was developed and released.

More up-to-date ASN.1 definitions might be available in the meantime. To find the latest versions, please navigate to the master branch on the referenced page.

Symbol	Abstract Syntax Notation definitions (ASN.1)
[EN 302 637-2]	https://forge.etsi.org/rep/ITS/asn1/cam_en302637_2/tree/v1.4.1
[EN 302 637-3]	https://forge.etsi.org/rep/ITS/asn1/denm_en302637_3/tree/v1.3.1
[EN 302 890-2]	https://forge.etsi.org/rep/ITS/asn1/poti_en302890_2/tree/v2.1.1
[IEEE 1609.2]	https://forge.etsi.org/rep/ITS/asn1/ieee1609.2/tree/v2017a
[ISO/TS 19091]	https://standards.iso.org/iso/ts/19091/ed-2/en/ISO-TS-19091-addgrp-C-2018.asn
[TS 102 894-2]	(Release 1): https://forge.etsi.org/rep/ITS/asn1/cdd_ts102894_2/-/tree/v1.3.1_1 (Release 2): https://forge.etsi.org/rep/ITS/asn1/cdd_ts102894_2/-/tree/V2.2.1
[TS 102 941]	https://forge.etsi.org/rep/ITS/asn1/pki_ts102941/tree/v1.4.1
[TS 103 097]	https://forge.etsi.org/rep/ITS/asn1/sec_ts103097/tree/v1.4.1
[TS 103 301]	https://forge.etsi.org/rep/ITS/asn1/is_ts103301/tree/v2.1.1